

WHAT IS CLAIMED AS NEW AND DESIRED TO BE SECURED BY  
LETTERS PATENT OF THE UNITED STATES IS:

1. A production system for the series manufacture of  
5 products,  
- having at least one processing device (2) for the  
automatic processing of products, the processing  
device (2), as a function of control commands,  
actuating at least one tool for processing one of  
10 the products,  
- having at least one measuring device (3) for the  
automatic measuring of at least one geometric  
actual dimension (15) at one of the products  
processed by the processing device,  
15 - having a correcting device (4) which is coupled to  
the processing device (2) and to the measuring  
device (3) and which compares the at least one  
measured actual dimension (15) with a preset  
target dimension (8) which lies within a tolerance  
20 interval (9) having an upper tolerance limit (10)  
and a lower tolerance limit (11), the correcting  
device (4) intervening in a corrective manner in  
the control commands of the respective tool if the  
actual dimension (15) lies outside an intervention  
25 interval (12) which lies with an upper  
intervention limit (13) and with a lower  
intervention limit (14) within the tolerance  
interval (9).
- 30 2. The production system as claimed in claim 1,  
characterized in that the processing device (2) is  
designed for the automatic machining of products and,  
as a function of control commands, actuates at least  
one cutting tool for machining one of the products.
- 35 3. The production system as claimed in claim 1 or 2,  
characterized in that the correcting device (4) permits  
a preliminary operating mode (17) in which the

correcting device (4) orients the intervention interval (12) centrally to the target dimension (8) or centrally to a predetermined cumulative tolerance (21) to be adhered to by the current production batch with regard  
5 to the actual dimension (15).

4. The production system as claimed in one of claims 1 to 3, characterized in that the correcting device (4) permits a preliminary operating mode (17) in which the  
10 correcting device (4) keeps the intervention limits (13, 14) constant.

5. The production system as claimed in one of claims 1 to 4, characterized in that the correcting device (4)  
15 permits a preliminary operating mode (17) in which the correcting device (4), irrespective of whether the actual dimension (15) is within or outside the tolerance interval (9), corrects the control commands if the actual dimension (15) lies outside the  
20 intervention interval (12).

6. The production system as claimed in one of claims 1 to 5, characterized in that the correcting device (4) permits a preliminary operating mode in which the  
25 correcting device (4) determines every corrective intervention with reference to the current actual dimension (15) irrespective of preceding actual dimensions (15) and/or corrective interventions (16).

30 7. The production system as claimed in one of claims 1 to 6, characterized in that the correcting device (4) permits a main operating mode (18) in which the correcting device (4) determines the current corrective interventions (16) with reference to the current actual  
35 dimension (15) and as a function of preceding actual dimensions (15) and/or corrective interventions (16).

8. The production system as claimed in one of claims 1 to 7, characterized in that the correcting device (4) permits a main operating mode (18) in which the correcting device (4), in the event of the actual dimension (15) lying within the tolerance interval (9), produces different corrective interventions (16) than in the event of the actual dimension (15) lying outside the tolerance interval (9).

9. The production system as claimed in one of claims 1 to 8, characterized in that the correcting device (4) permits a main operating mode (18) in which the correcting device (4) automatically varies the intervention limits (13, 14) as a function of preceding actual dimensions (15) and/or corrective interventions (16).

10. The production system as claimed in claim 9, characterized in that the correcting device (4) reduces the intervention limits (13, 14) if the number of corrective interventions (16) and/or their magnitude decreases at successive actual dimensions (15), and/or in that the correcting device (4) increases the intervention limits (13, 14) if the number of corrective interventions (16) and/or their magnitude increases at successive actual dimensions (15).

11. The production system as claimed in one of claims 1 to 10, characterized in that the correcting device (4) permits a main operating mode (18) in which the correcting device (4) orients the intervention interval (12) eccentrically to the target dimension (8).

12. The production system as claimed in claim 11, characterized in that the correcting device (4), in the main operating mode (18), orients the intervention interval (12) eccentrically to the target dimension (8) until a predetermined cumulative tolerance (21) to be

adhered to by the current production batch with regard to the actual dimension (15) is achieved, and the intervention interval (12) is oriented centrally to the target dimension (8) as soon as the cumulative  
5 tolerance (21) is achieved.

13. The production system as claimed in claim 11 or 12, characterized in that the correcting device (4) sets the eccentricity with which the intervention  
10 interval (12) deviates from the target dimension (8) as a function of the cumulative tolerance (21) while taking into account the preceding actual dimensions (15) and/or corrective interventions (16).

14. The production system as claimed in claim 13, characterized in that the correcting device (4) takes into account a tool change when determining the corrective intervention (16).

15. The production system as claimed in claim 14, characterized in that the correcting device (4), when determining the corrective intervention (16), takes into account a predetermined correction limiting factor which presets a maximum corrective quantity.

16. The production system as claimed in claim 15, characterized in that the correcting device (4) takes into account the correction limiting factor only when the current actual dimension (15) lies within the  
25 tolerance interval (9).

17. The production system at least as claimed in claims 3 and 7, characterized in that the correcting device (4), during a new production cycle, works in the preliminary operating mode (17) for a predetermined or  
35 predeterminable number of products and then changes over into the main operating mode (18).

18. The production system as claimed in one of claims  
1 to 17, characterized in that the correcting device  
(4) is designed in such a way that it can  
simultaneously correct a plurality of dimensions of the  
5 product which can influence one another.

19. The production system as claimed in one of claims  
1 to 18, characterized in that the correcting device  
(4) determines the magnitude of the corrective  
10 intervention (16) as a function of the distance between  
the actual dimension (15) and the center of the  
intervention interval (12).

LIST OF DESIGNATIONS

	1	Production system
	2	Processing device
5	3	Measuring device
	4	Correcting device
	5	Arrow
	6	Arrow
	7	Arrow
10	8	Target dimension
	9	Tolerance interval
	10	Upper tolerance limit
	11	Lower tolerance limit
	12	Intervention interval
15	13	Upper intervention limit
	14	Lower intervention limit
	15	Actual dimension
	16	Corrective intervention
	17	Preliminary operating mode
20	18	Main operating mode
	19	Start of the production cycle
	20	Start of the main operating mode
	21	Desired cumulative tolerance
	22	Instantaneous cumulative tolerance
25	23	Circle